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## **Six Sigma Trends: New Brainstorming Tools & Techniques for Everybody**

Here is a fifth article reflecting our on-going research on advanced tools, strategies and trends in deploying six sigma particular via distant or virtual training and project coaching.

Our evaluation is based on

- practical virtual training and project coaching for industries in and outside Europe,
- basic research in the field of ergodynamics and efficient methodologies for adult learning within international research network.

Here we present breakthrough problem solving tools and techniques, which allow to raise brainstorming capability several times and hence to speed up and increase efficiency and productivity of (team-) problem solving at different phases of six sigma implementation.

I will appreciate your responses and I am thankful also in advance for every feedback, questions and discussion.

### **High demand for new problem solving tools and techniques**

Problem solving in six sigma applications is a major activity along with the whole project life cycle. Six Sigma champions and/or belts are spending in average 20% to 30% of the project time in diverse team-meetings. Traditionally each meeting focuses on solving one or another problem, involves several team members (usually 2 to 10) and is conducted in the form of brainstorming session.

The most critical part in any sort of related problem solving is the problem definition, especially in the early phases of the projects. If we poorly define the problem and/or ignore secondary problems which may occur as a result of solving the primary problem-in- focus, we may find wonderful and elegant solutions, BUT... But these

solutions DO NOT SOLVE existing problem and/or may CAUSE even bigger problems consequently.

Costs of poor quality of problem definition and -solving are significant, both hard and soft ones. They may cause big wrong investments, delays, financial and business losses due to the still existing and still not solved problems etc. Faults in problem definition and –solving could consequently effect the “problem solvers” themselves, cause frustration, losing face, undermine their job position etc.

Hence, new error prone problem solving tools and techniques, which may significantly improve problem solving capability, effectiveness and efficiency, as well as personal satisfaction are in high demand.

### **Traditional brainstorming tools**

Traditional problem solving techniques like e.g. brainstorming (Osborn) , which remain popular through several generations, unfortunately do not guarantee the success and do not challenge or support right problem definition.

During traditional brainstorming

- search for ideas is chaotic and, hence, not complete especially within limited time and -team composition,
- the memory of participants is overloaded when trying to squeeze ideas,
- participants are quickly tired and even with experienced facilitator may become reluctant and non-productive after first 15-20 min
- any critic is forbidden during the traditional brainstorming session. It prevents therefore any discussion about secondary problems, negative effects of solutions etc. The risk to define the problem in a wrong or incomplete way and to invest time, efforts, money etc. in the wrong direction is consequently pretty high.

### **New brainstorming tools**

New tools for brainstorming combine advantages of traditional brainstorming techniques of Osborn and of the I-TRIZ techniques. TRIZ is an acronym of Russian Theory of Inventive Problem Solving, which has been developed by Henrich Altshuller in 1940s-80s in Russia.

New tools are called Ideation Brainstorming, as they are based on the follow-up research of TRIZ specialists in Ideation, Inc. led by Boris Zlotin. Inventor and analyst B.Zlotin has been a student of H. Altshuller and has published several books together with him. The follow-up research studies are known as I-TRIZ -- an expanded, enhanced, and restructured version of the Theory of Inventive Problem Solving (TRIZ)

### **Ideation Brainstorming tools and methodology**

Ideation Brainstorming software tools implement a simple well structured **4-step process** for solving problems using I-TRIZ:

1. Define the problem-solving objectives
2. Form an "ideal" vision of a system
3. Develop solution concepts to bring the system closer to ideal
4. Evaluate solution concepts and tackle subsequent tasks

These easy-to-use tools contain more than 100 "operators" -- proven problem definition, - solving and innovation axioms with practical examples that have been successfully applied throughout the history of technology, as documented in patents and other descriptions of inventive achievement.

Ideation Brainstorming tools serve as a **structured guide** and **knowledge-based facilitation support** for any brainstorming session and for any application.

The Ideation Brainstorming operators particularly help to:

- Improve system performance, functionality, efficiency, etc.
- Eliminate, reduce, prevent or counteract undesired system effects and characteristics
- Find new applications for a system
- Resolve system contradictions without trade-off or compromise etc.

## Who may use it

Anybody is able to use these tools after a short introductory workshop (2 hours) and a case study performed with the help of experienced facilitator (2 hours). The Ideation Brainstorming tools contain an e-Learning introductory book into I-TRIZ. Basic I-TRIZ e-Learning teaches the fundamentals of the I-TRIZ methodology (system approach, "ideality", recognizing and resolving contradictions, utilization of resources, and more) in 4 hours or less.

## Positive Impact

Our research and practical experiences in conducting brainstorming sessions (also virtually) for diverse problem solving targets shows, that using Ideation Brainstorming

- Increases the productivity of idea generation 3-5 times in the first 15-20 min of brainstorming and 5-10 times during the rest of the session (which may last up to 2 hours) in comparison with traditional brainstorming techniques
- The **quality** of ideas (e.g. their impact on increasing sigma level and process capability) and their completeness are much higher comparing with traditional methods
- The risks to define problem in a wrong way, or forget critical opportunities, resources etc., miss efficient concepts and solutions are few orders lower
- Reduces or eliminates "rework" or follow-up brainstorming sessions with similar targets.

- Team members feel motivated and much more satisfied and excited after the session, especially due to the high tempo in ideas generation, proof of being smart, effectiveness and efficiency.

One need much less time and efforts to come with better ideas and solutions, and it will certainly make the Ideation Brainstorming to one of the most commonly used problem solving tools for diverse applications and audiences.

## **Discussion**

This article particularly focuses on increasing capability, robustness , effectiveness and efficiency of problem solving using new Ideation Brainstorming tools and techniques.

Our first evaluation of Ideation Brainstorming show really **breakthrough results** in diverse problem solving applications for different teams, both in black- and green belt projects. Personal demands on the expertise, durable concentration and idea generation by each team member participating in brainstorming session are becoming lower along with increasing team-productivity and personal satisfaction. **“Accomplish more with less effort”** – is a healthy philosophy and a strong drive for the most broad application of these tools, especially within six sigma community but also beyond.

Any trial application and sharing results with us is most welcome!

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